

Patent claims

1. Heated cylinder (1, 14, 18) for heating a paper web, cardboard web, tissue web
5 or other fiber web in a machine used for producing and/or refining the fiber web, said heated cylinder comprising a cylinder sleeve which is impinged upon at least in part from the inside by a hot fluid and has at least one inner (5, 15, 19) and an outer sleeve layer (6, 16, 20),
characterized in that
- 10 the two sleeve layers (5, 6; 15, 16; 19, 20) are separated from each other by a hollow space into which the fluid can be introduced.
2. Cylinder (1, 14, 18) according to claim 1,
characterized in that
- 15 the inner sleeve layer (5, 15, 19) is thicker than the outer sleeve layer (6, 16, 20).
3. Cylinder (1, 14, 18) according to claim 1 or 2,
characterized in that
- 20 the outer sleeve layer (6, 16, 20) has a wall thickness from 8 to 15 mm.
4. Cylinder (1, 14, 18) according to one of the claims 1 to 3,
characterized in that
- 25 the fluid is steam and the steam in the hollow space between the two sleeve layers (5, 6; 15, 16; 19, 20) has a positive pressure of between 2 and 13 bar.
5. Cylinder (1, 14, 20) according to one of the claims 1 to 4,
characterized in that
- 30 a rib structure (18) extending in axial or circumferential direction or having a helical shape, a honeycomb structure or a lattice structure is applied on to the inner surface of the outer sleeve layer (6, 16, 20) facing the hollow space.
6. Cylinder (1, 14, 18) according to claim 5,
characterized in that

the rib, honeycomb or lattice structure (8) is comprised of a material with a high thermal conductivity, in particular copper or aluminium.

7. Cylinder (1, 14, 18) according to claim 5 or 6,
5 **characterized in that**
the surface of the rib, honeycomb or lattice structure (8) is ten to one hundred times greater than the inner surface of the outer sleeve layer (6, 16, 20).
8. Cylinder (1, 14, 18) according to one of the claims 1 to 7,
10 **characterized in that**
the outer sleeve layer (6, 16, 20) is comprised of a material with a high thermal conductivity.
9. Cylinder (1, 14, 18) according to claim 8,
15 **characterized in that**
the outer sleeve layer (6, 16) is comprised of boiler steel.
10. Cylinder (1, 14, 18) according to one of the claims 1 to 9,
characterized in that
20 the inner sleeve layer (5, 15, 19) has a high modulus of elasticity.
11. Cylinder (1, 14, 18) according to one of the claims 1 to 10,
characterized in that
the pipes (11, 12) between the inner (5, 15, 19) and the outer sleeve layer (6,
25 16, 20) are connected via rotary bushings to a fixed steam supply or an exhaust steam and condensed water tank.
12. Cylinder (1, 14, 18) according to one of the claims 1 to 11,
30 **characterized in that**
the inner sleeve layer (15, 19) performs the load-bearing function and serves as a rigid core which absorbs the loads acting on the outer sleeve layer (16, 20).
13. Cylinder (14) according to one of the claims 1 to 12,

characterized in that

the inner (15) and the outer sleeve layer (16) are connected by way of bars, pins (17), screws, rivets and the like.

- 5 14. Cylinder (18) according to one of the claims 1 to 13,
characterized in that
platelets (21, 22) are attached between the inner (19) and the outer sleeve layer (20).

- 10 15. Cylinder (18) according to claim 14,
characterized in that
the platelets (21, 22) are arranged parallel, in particular in axial direction of the cylinder (18), crosswise, helically or in a honeycomb or lattice structure.

- 15 16. Cylinder (18) according to claim 14 or 15,
characterized in that
the platelets (21, 22) have a flat or a profiled surface.

17. Cylinder (18) according to one of the claims 14 to 16,
20 **characterized in that**
the platelets (21, 22) become wider in the direction of the outer sleeve layer (20).

25

18. Cylinder (1, 14, 18) according to one of the claims 1 to 17,
characterized in that
the surface of the rib, honeycomb or lattice structure on the inner side of the outer sleeve layer (6, 16, 20) at the circumferential end becomes smaller near
30 the end faces (3, 4) of the cylinder (1, 14, 18).

19. Heated cylinder (23) for heating a paper web, cardboard web, tissue web or some other fiber web in a machine for producing and/or refining the fiber web which has one outer cylinder sleeve (19),

characterized in that

the outer cylinder sleeve (24) is supported by struts (25, 26, 27) inside the cylinder (23).